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Gravitational radiation and birefringence induced by curvature

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Abstract

The exact solutions of the problems of propagation of electromagnetic and massive vector fields in the background of a nonlinear plane gravitational wave accounting for the tidal interaction induced by the curvature are obtained. The phenomenon of the gravitationally induced birefringence and trirefringence as well as the problem of amplitude-phase modulation in the presented electrodynamical systems are discussed.

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